

Factor $ax^2 + bx + c$

Factor completely, then solve.

1. $x^2 + 11x - 12 = 0$

$$(x + 12)(x - 1) = 0$$

$$x = -12 \quad x = 1$$

2. $y^2 + 8y + 15 = 0$

$$(y + 3)(y + 5) = 0$$

$$y = -3 \quad y = -5$$

Name Key

3. $3y^2 - 17y + 20 = 0$

~~$$3y^2 - 17y + 20 = 0$$~~

$$3y^2 - 5y - 12y + 20 = 0$$

$$y(3y - 5) - 4(3y - 5) = 0$$

$$(y - 4)(3y - 5) = 0 \quad \{4, \frac{5}{3}\}$$

4. $4x^2 - 8x - 21 = 0$

$$4x^2 - 14x + 6x - 21 = 0$$

$$2x(2x - 7) + 3(2x - 7) = 0$$

$$(2x + 3)(2x - 7) = 0$$

$$x = -\frac{3}{2} \quad x = \frac{7}{2}$$

5. $5y^2 + 18y - 8 = 0$

$$5y^2 - 2y + 20y - 8 = 0$$

$$y(5y - 2) + 4(5y - 2) = 0$$

$$(5y - 2)(y + 4) = 0$$

$$\{\frac{2}{5}, -4\}$$

6. $3n^2 - 13n + 12 = 0$

$$3n^2 - 4n - 9n + 12 = 0$$

$$n(3n - 4) - 3(3n - 4) = 0$$

$$(n - 3)(3n - 4) = 0$$

$$n = 3 \quad n = \frac{4}{3}$$

7. $4y^2 + 5y - 6 = 0$

$$4y^2 + 8y - 3y - 6 = 0$$

$$4y(y + 2) - 3(y + 2) = 0$$

$$(4y - 3)(y + 2) = 0$$

$$y = \frac{3}{4} \quad y = -2$$

8. $4x^2 - 4x - 15 = 0$

$$4x^2 + 6x - 10x - 15 = 0$$

$$2x(2x + 3) - 5(2x + 3) = 0$$

$$(2x - 5)(2x + 3) = 0$$

$$x = \frac{5}{2} \quad x = -\frac{3}{2}$$

9. $6x^2 + 7x - 10 = 0$

$$6x^2 + 12x - 5x - 10 = 0$$

$$6x(x + 2) - 5(x + 2) = 0$$

$$(6x - 5)(x + 2) = 0$$

$$x = \frac{5}{6} \quad x = -2$$